



Through more than 50 years of research into safety countermeasures, the LRRB has helped to save lives on county highways and local streets.



Since 1959, LRRB pavement research has led to innovations in design and construction that make local roads smoother and longer lasting.



Since the 1980s, the LRRB has supported stormwater management projects that develop, test and improve effective practices for pollution control and prevention.



A major focus of the LRRB today is public involvement, including public outreach in all stages of transportation projects.



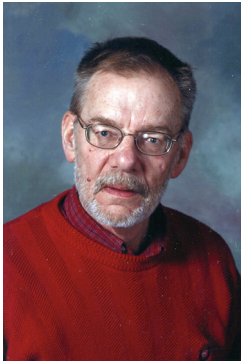
# FY2013

## Local Road Research Board

# At-A-Glance

JULY 1, 2012, THROUGH JUNE 30, 2013

This publication summarizes the Local Road Research Board's Fiscal Year 2013 research activities. It lists the year's completed reports and active projects, describes the LRRB's goals and resources, and marks 55 years of successful collaboration by Minnesota's city and county transportation agencies to support research that improves our transportation infrastructure, enhances highway safety and integrates the local road system into the community.



**Rick West**  
LRRB Chair, Otter Tail County

Welcome to the *FY2013 Local Road Research Board At-A-Glance*. As we celebrate 55 years of serving local transportation research needs in Minnesota, we remain committed to supporting and sharing the latest developments in transportation research. The LRRB works because of you—the city and county representatives who identify projects to pursue, participate on project panels, work to implement project results and provide feedback to continually improve LRRB operations. We appreciate the collaborative partnerships with MnDOT and the University of Minnesota in building a successful program.



**Julie Skallman**  
MnDOT State Aid Division

## LRRB MEMBERS

Rick West (Chair), Otter Tail County  
Julie Skallman, MnDOT State Aid Division  
Tom Ravn, MnDOT Office of Construction & Innovative Contracting  
Linda Taylor, MnDOT Research Services & Library  
Bruce Hasbargen, Beltrami County  
Lyndon Robjent, Carver County  
Tim Stahl, Jackson County  
Steve Koehler, City of New Ulm  
John Powell, City of Savage  
Laurie McGinnis, University of Minnesota CTS



**2013 LRRB board members: (from left, front row) Lyndon Robjent, Julie Skallman, Laurie McGinnis, Tim Stahl; (back row) John Powell, Tom Ravn, Linda Taylor, Bruce Hasbargen, Steve Koehler.**

## RESEARCH IMPLEMENTATION COMMITTEE MEMBERS

Jeff Hulsether (Chair), City of Brainerd  
Dave Robley (Vice Chair), Douglas County  
Rich Sanders (Chair, 2012), Polk County  
Mitch Rasmussen, Scott County  
Tim Stahl, Jackson County  
Klayton Eckles, City of Woodbury  
Walter Leu, MnDOT State Aid Division  
Rick Kjonaas, MnDOT State Aid Division  
Maureen Jensen, MnDOT Office of Materials & Road Research  
Hafiz Munir, MnDOT Research Services & Library  
Jim Grothaus, University of Minnesota CTS  
Farideh Amiri, MnDOT Research Services & Library staff



**2013 RIC members: (from left, front row) Walter Leu, Farideh Amiri, Maureen Jensen, Hafiz Munir, Rick Kjonaas, Klayton Eckles; (back row) Tim Stahl, Dave Robley, Rich Sanders, Mitch Rasmussen, Jeff Hulsether, Jim Grothaus.**

# LRRB Completed Reports and Implementation Products in FY2013

## FUNDING SOURCE KEY

**LRRB** Local Road Research Board  
**SRP** MnDOT State Research Program  
**SP&R** State Planning & Research (FHWA)

LRRB Identifier	Report Title	Report Number	Contractor	Investigator	Technical Liaison	Project Coordinator	Start Date	End Date	Funding Source	Project Cost
INV 645	RIC: ADA Transition Plan for Public Rights of Way	2012RIC01	SRF Consulting Group, Inc.	Mike Marti	Mitch Rasmussen	Farideh Amiri	6/20/11	7/31/14	LRRB	\$29,119
INV 645	RIC: Aggregate Roads Dust Control: A Brief Synthesis of Current Practices	2013RIC6.7	SRF Consulting Group, Inc.	Mike Marti	Rich Sanders	Farideh Amiri	1/22/11	12/31/12	LRRB	\$31,350
INV 645	RIC: Complete Streets Implementation Resource Guide for Minnesota Local Agencies	2013RIC02	SRF Consulting Group, Inc.	Mike Marti	Jeff Hulseher	Farideh Amiri	6/20/11	7/31/14	LRRB	\$45,725
INV 864	MPR-6(022): Recycled Asphalt Pavement: MnROAD Study of RAP and Fractionated RAP	2012-39	MnDOT Materials and Road Research Section	Eddie Johnson	Gregory Johnson	Bruce Holdhusen	1/4/08	12/31/12	LRRB, SP&R, Other State Funds	\$275,000
INV 865	TPF-5(132): Investigation of Low-Temperature Cracking in Asphalt Pavements National Pooled Fund Study—Phase II	2012-23	University of Minnesota	Mihai Marasteanu	Timothy Clyne	Bruce Holdhusen	6/17/08	8/31/12	LRRB, SP&R, SRP	\$475,000
INV 867	TPF-5(149): Design and Construction Guidelines for Thermally Insulated Concrete Pavements	2013-02	University of Minnesota	Lev Khazanovich	Timothy Clyne	Nelson Cruz	1/30/08	1/30/13	LRRB, SP&R	\$438,980
INV 887	Structural Evaluation of Asphalt Pavements with Full-Depth Reclaimed Base	2012-36	University of Minnesota	Joseph Labuz	Merle Earley	Daniel Warzala	6/4/09	11/30/12	LRRB, Other State Funds	\$38,260
INV 889	Recycled Asphalt Pavement: Study of High-RAP Asphalt Mixtures on Minnesota County Roads	2013-15	MnDOT Materials and Road Research Section	Eddie Johnson	Gregory Johnson	Daniel Warzala	2/22/10	8/31/13	LRRB	\$30,000
INV 895	Traffic-Generating Development and Roadway Life Consumption	2012RIC11	Minnesota State University, Mankato	W. James Wilde	Tim Stahl	Farideh Amiri	1/22/10	12/31/12	LRRB	\$37,038
INV 900	46th Street Pilot Street Lighting Project	2013-04	Hennepin County	Robb Luckow	Susan Zarling	Shirlee Sherkow	6/25/10	1/31/13	LRRB	\$50,000
INV 902	Material Control Testing Rates for Low-Volume Roads	2012-17	Minnesota State University, Mankato	Brian Wasserman	Joseph MacPherson	Farideh Amiri	6/1/10	7/31/12	LRRB	\$25,000
INV 904	Stripping of Hot-Mix Asphalt Pavements Under Chip Seals	2013-08	MnDOT Materials and Road Research Section	Thomas Wood	Thomas Tesch	Daniel Warzala	7/19/10	4/30/13	LRRB	\$40,000
INV 912	Improved Approach to Enforcement of Road Weight Restrictions	2013-27	University of Minnesota	Rajesh Rajamani	Benjamin Timerson	Nelson Cruz	9/21/11	11/30/13	LRRB, SRP	\$65,000
INV 934	Friction Measurement System for Polk County	2013-26	University of Minnesota	Rajesh Rajamani	Rich Sanders	Daniel Warzala	6/29/12	11/30/13	LRRB	\$40,000





# LRRB RESEARCH

## Active Research Contracts in FY2013

### COMMON FUNDING SOURCES

**LRRB** Local Road Research Board  
**SP&R** State Planning & Research (FHWA)  
**SRP** MnDOT State Research Program  
**COPTRS** Cooperative Program for Transportation Research and Studies

LRRB Identifier	Title	Contract #	Contractor	Investigator	Technical Liaison	Project Coordinator	Start Date	End Date	Funding Source	Total Cost
INV 645	RIC Implementation of Research Findings, FY2009-FY2011	93463	SRF Consulting Group, Inc.	Mike Marti	Rich Sanders	Farideh Amiri	4/17/09	6/30/13	LRRB	\$497,697
INV 645	RIC Implementation of Research Findings, 2012-2014	98383	SRF Consulting Group, Inc.	Mike Marti	Rich Sanders	Farideh Amiri	6/20/11	7/31/14	LRRB	\$652,762
INV 645	RIC: HCM Unsignalized Crosswalk LOS Training	03619, 99008 W0126	University of Minnesota, Bolton & Menk, Inc., Consulting Engineers & Surveyors	Bryan Nemeth, Jim Grothaus	Tony Winiacki	Shirlee Sherkow	4/26/13	1/31/14	LRRB	\$49,252
INV 645	RIC: Best Value Procurement Development	93103 W016	HNTB Corporation	Steve Howe	Kevin Kosobud	Farideh Amiri	8/5/09	7/31/12	LRRB, Partnership Funds	\$140,547
INV 645	RIC: Integrated Tools for Pavement Design and Management	94288	Minnesota State University, Mankato	W. James Wilde	Rich Sanders	Farideh Amiri	4/21/09	2/28/14	LRRB, SRP	\$86,036
INV 645	RIC: Road Safety—Toward Zero Deaths (TZD)	98383 Task 4	SRF Consulting Group, Inc.	Mike Marti	Mitch Rasmussen	Farideh Amiri	6/20/11	7/31/14	LRRB	\$94,304
INV 645	RIC: Traffic Monitoring	98383 Task 5.1	SRF Consulting Group, Inc.	Mike Marti	Tim Stahl, Darin Mielke	Farideh Amiri	6/20/11	7/31/14	LRRB	\$145,707
INV 645	RIC: Online Sign Management and Maintenance	98383 Task 5.2	SRF Consulting Group, Inc.	Mike Marti	Rich Sanders	Farideh Amiri	6/20/11	7/31/14	LRRB	\$218,708
INV 645	INV 645: LRRB Outreach and Marketing	98383 Task 6	SRF Consulting Group, Inc.	Mike Marti	TBD	Farideh Amiri	6/20/11	7/31/14	LRRB	\$60,826
INV 645	RIC: 2012 Truck Weight Enforcement Training Program	99008 W059	University of Minnesota	Jim Grothaus	Richard Kjonaas	Daniel Warzala	4/12/12	8/31/13	LRRB, SRP, Other State Funds	\$30,000
INV 668	Local Technical Assistance Program (LTAP), FY2012	99008 W05	University of Minnesota	Jim Grothaus	Julie Skallman	Farideh Amiri	9/23/11	11/30/12	LRRB, Other Federal Funds	\$441,500
INV 668	Local Technical Assistance Program (LTAP), FY2013	99008 W061	University of Minnesota	Jim Grothaus	Julie Skallman	Farideh Amiri	8/1/12	11/30/13	LRRB, Other Federal Funds	\$440,500
INV 863	TPF-5(153): Optimal Timing of Preventive Maintenance for Addressing Environmental Aging in HMA Pavements	95099	Asphalt Institute	Mike Anderson	Thomas Wood	Bruce Holdhusen	3/30/10	11/30/13	LRRB, SP&R, Other Federal Funds	\$286,185
INV 868	MPR-6(029): HMA Surface Characteristics	LAB868	MnDOT Materials and Road Research Section	Melissa Cole	Gregory Johnson	Bruce Holdhusen	9/18/07	2/28/13	LRRB, SP&R, Other State Funds	\$137,625
INV 868	MPR-6(029): HMA Surface Characteristics Related to Ride, Texture, Friction, Noise and Durability	98283	Purdue University	Rebecca McDaniel	Bruce Tanquist	Bruce Holdhusen	8/11/11	4/30/14	LRRB, SP&R, Other State Funds	\$50,000
INV 869	TERRA Board Support, FY2012-2013	99008 W06	University of Minnesota	Stephanie Malinoff	Mark Maloney	Julie Skallman	10/18/11	8/31/14	LRRB, SP&R, SRP, Other Federal Funds	\$90,000

LRRB Identifier	Title	Contract #	Contractor	Investigator	Technical Liaison	Project Coordinator	Start Date	End Date	Funding Source	Total Cost
INV 869	TERRA Membership Pooled Funds, FY2012-2014	99008 W034	University of Minnesota	Laurie McGinnis	Maureen Jensen	Linda Taylor	1/12/12	9/30/14	LRRB, SP&R, SRP, Other Federal Funds	\$65,000
INV 885	Research Test Section Tracking—Phase II	INV 885	MnDOT Materials and Road Research Section	Melissa Cole	Luane Tasa	Farideh Amiri	12/21/09	12/31/17	LRRB	\$55,000
INV 886	Cost-Effective Pavement Preservation Solutions for the Real World	94079	Minnesota State University, Mankato	W. James Wilde	Gregory Coughlin, Malaki Ruranika	Nelson Cruz	9/8/09	9/30/13	LRRB, SRP	\$94,984
INV 886	Cost-Effective Pavement Preservation Solutions for the Real World	LAB886	MnDOT Materials and Road Research Section	Thomas Wood	Gregory Coughlin	Nelson Cruz	9/10/09	9/30/13	LRRB, SRP	\$15,000
INV 887	Structural Evaluation of Asphalt Pavements with Full-Depth Reclaimed Base	LAB887	MnDOT Materials and Road Research Section	Shongtao Dai	Merle Earley	Daniel Warzala	10/5/09	5/31/13	LRRB, Other State Funds	\$41,548
INV 894	Assessing and Improving Pollution Prevention by Swales	89261 W0207	University of Minnesota	John Gulliver	Barbara Loida	Bruce Holdhusen	7/30/10	3/31/14	LRRB, SRP	\$314,000
INV 896	Quantifying Moisture Effects in DCP and LWD Tests Using Unsaturated Mechanics	89261 W0190	University of Minnesota	Kimberly Hill	John Siekmeier	Nelson Cruz	9/24/10	2/28/14	LRRB, SRP, COPTRS	\$109,900
INV 897	Developing Salt-Tolerant Sod Mixtures for Use as Roadside Turf in Minnesota	89261 W0211	University of Minnesota	Eric Watkins	Dwayne Stenlund	Daniel Warzala	6/8/10	8/31/14	LRRB	\$176,516
INV 898	Estimating the Crash Reduction and Vehicle Dynamics Effects of Flashing LED Stop Signs	89261 W0195	University of Minnesota	Gary Davis	Bradley Estochen	Shirlee Sherkow	6/28/10	2/28/14	LRRB, COPTRS, ITS Institute	\$74,667
INV 899, INV 825	Performance Monitoring of Olmsted CR 117/104 and Aggregate Base Material Update	LAB899	MnDOT Materials and Road Research Section	Matthew Lebens	Michael Sheehan	Alan Rindels	6/8/10	2/28/15	LRRB	\$36,000
INV 903	Best Practices for Sign Reduction on the Local System, 2009-2011	98039	CH2M Hill	Howard Preston	Mark Vizecky	Farideh Amiri	6/6/11	7/31/12	LRRB	\$26,515
INV 907	Impact of Garbage Haulers on Pavement Performance	98108	Minnesota State University, Mankato	W. James Wilde	Deb Bloom	Daniel Warzala	2/22/11	8/31/13	LRRB	\$54,000
INV 909	Planning and Implementation of Complete Streets at Multiple Scales	99008 W011	University of Minnesota	Carissa Schively Slotterback	Scott Bradley	Bruce Holdhusen	10/4/11	1/31/14	LRRB, SRP	\$101,271
INV 910	Partially Grouted Riprap Lab Flume Study (Matrix Riprap)	99008 W02	University of Minnesota	Jeff Marr	Nicole Danielson-Bartelt	Shirlee Sherkow	11/1/11	8/31/14	LRRB, SRP	\$130,373
INV 911	Best Practices Synthesis and Guidance in At-Grade Trail Crossing Treatments	89264 W04	University of Wisconsin – Madison	David Noyce	Lisa Austin	Bruce Holdhusen	6/14/11	10/31/13	LRRB, SRP	\$96,866
INV 914	Research Using Waste Shingles for Stabilization or Dust Control for Gravel Roads and Shoulders	LAB914	MnDOT Materials and Road Research Section	Thomas Wood	Tim Stahl	Daniel Warzala	5/11/11	1/31/14	LRRB, SRP	\$77,000
INV 915	Implications of Modifying State Aid Standards: Urban, New or Reconstruction (Mn Rules 8820.9936) to Accommodate Various Roadway Users (Complete Streets)	89264 W07	University of Wisconsin – Madison	David Noyce	Paul Stine	Bruce Holdhusen	6/28/11	12/31/13	LRRB	\$117,700
INV 916	LRRB Technical Transfer Materials Development	98725	CTC & Associates LLC	Patrick Casey	Julie Skallman	Sandra McCully	5/20/11	9/30/13	LRRB	\$99,892
INV 917	Two-Lane Roundabout Field Research Regarding Signing and Striping	89261 W0271	University of Minnesota	John Hourdos	Kristin Asher	Shirlee Sherkow	6/30/11	4/30/14	LRRB	\$105,000

LRRB Identifier	Title	Contract #	Contractor	Investigator	Technical Liaison	Project Coordinator	Start Date	End Date	Funding Source	Total Cost
INV 917	Two-Lane Roundabout Field Research Regarding Signing and Striping	99072	City of Richfield	Kristin Asher	None	Shirlee Sherkow	9/8/11	8/30/13	LRRB	\$5,000
INV 918	Implementation of TONN 2010	98319	Minnesota State University, Mankato	W. James Wilde	Rich Sanders	Farideh Amiri	5/4/11	7/31/13	LRRB, SRP	\$35,000
INV 921	Frost Video Update and Enhancement	00669	SRF Consulting Group, Inc.	Mike Marti	Benjamin Worel	Shirlee Sherkow	6/14/12	8/31/13	LRRB, Partnership Funds	\$64,986
INV 922	System Preservation Guide—A Planning Process for Local Government Management of Transportation Networks	99373	SRF Consulting Group, Inc.	Brian Shorten	Susan Miller	Farideh Amiri	1/19/12	11/30/14	LRRB	\$698,876
INV 924	YouTube Video: Stop Signs/Speed Limits	01538	SRF Consulting Group, Inc.	Mike Marti	Sulmaan Khan	Farideh Amiri	8/15/12	1/31/13	LRRB	\$26,810
INV 924	YouTube Video: Rural Work Zone Safety	03434	Stonebrooke Engineering Inc.	Tim Arvidson	Sulmaan Khan	Farideh Amiri	3/22/13	11/30/13	LRRB	\$12,801
INV 924	LRRB Video on Potholes	01955	CTC & Associates LLC	Patrick Casey	Joseph MacPherson	Farideh Amiri	9/7/12	1/31/13	LRRB	\$11,755
INV 925	Advanced LED Warning Signs for Rural Intersections Powered By Renewable Energy (ALERT) System—Phase II	99008 W025	University of Minnesota – Duluth	Taek Kwon	Victor Lund	Alan Rindels	12/14/11	6/30/14	LRRB	\$106,192
INV 926	Innovative Bridge Construction for Minnesota Local Roads—Synthesis Report	99586	HDR Engineering	Daniel Dorgan	John Welle	Shirlee Sherkow	12/9/11	7/31/12	LRRB	\$24,976
INV 927	LRRB Outreach Website	00340	HNTB Corporation	Timm Claudon	Lowell Schafer	Sandra McCully	2/2/12	1/31/14	LRRB	\$99,991
INV 928	Human Factors of Vehicle-Based Lane Departure Warning Systems	99008 W0110	University of Minnesota	Christopher Edwards	Victor Lund	Shirlee Sherkow	4/16/13	12/31/14	LRRB	\$100,000
INV 929	Petrographic Analysis of Colored Concrete Pavement	01219	American Engineering Testing, Inc.	Gerald Moulzolf	Dallas Larson	Bruce Holdhusen	8/1/12	1/31/14	LRRB	\$40,983
INV 929	Investigation and Assessment of Colored Concrete Pavement	LAB929	MnDOT Materials and Road Research Section	Alexandra Akkari	Dallas Larson	Bruce Holdhusen	4/24/12	4/28/14	LRRB	\$45,000
INV 930	Development and Integration of Advanced Timber Bridge Inspection Techniques for NBIS	99008 W062	University of Minnesota – Duluth	Brian Brashaw	David Conkel	Daniel Warzala	8/6/12	1/31/15	LRRB, Other DOTs	\$199,786
INV 931	MPR-2(001): Lighting Levels for Isolated Intersections Leading to Safety Improvements	99008 W039	University of Minnesota	Christopher Edwards	Susan Zarling	Daniel Warzala	7/31/12	2/28/15	LRRB, SP&R, SRP	\$94,170
INV 932	Determination of Effective Impervious Area in Urban Watersheds	99008 W054	University of Minnesota	John Gulliver	Scott Anderson	Shirlee Sherkow	6/29/12	7/31/15	LRRB	\$150,000
INV 933	Building Local Agency Capacity for Public Engagement in Local Road Systems Planning and Decision-Making	99008 W055	University of Minnesota	Kathryn Quick	Bruce Hasbargen	Shirlee Sherkow	7/27/12	7/31/14	LRRB	\$140,062
INV 935	Design Considerations for Embankment Protection During Road Overtopping Events	99008 W050	University of Minnesota	Craig Taylor	John Anderson	Shirlee Sherkow	9/28/12	3/31/15	LRRB, SRP	\$158,794
INV 936	LRRB Focus Groups	99008 W060	University of Minnesota	Jim Grothaus	Richard West	Linda Taylor	3/30/12	7/31/13	LRRB	\$17,000
INV 937	Development of Guidelines for Flashing Yellow Arrows for Protected/Permissive Use	99008 W063	University of Minnesota	Gary Davis	Susan Zarling	Alan Rindels	8/9/12	6/30/14	LRRB, SRP	\$85,000

LRRB Identifier	Title	Contract #	Contractor	Investigator	Technical Liaison	Project Coordinator	Start Date	End Date	Funding Source	Total Cost
INV 939	Lightly Surfaced Roads, Stabilized Aggregate Applications	99004 W07	Iowa State University	Charles Jahren	Gerard Geib	Daniel Warzala	11/15/12	7/31/14	LRRB	\$40,000
INV 940	Development of Cost-Effective Timber Bridge Repair Techniques for Minnesota	99004 W05	Iowa State University	Brent Phares	David Conkel	Daniel Warzala	12/14/12	3/31/15	LRRB, Other DOTs	\$299,582
INV 941	Online Technician Certification/Recertification Training	02653	Professional Engineering Services, Ltd.	Ann Johnson	John Micheau, Michael Hogan	Daniel Warzala	12/28/12	1/31/14	LRRB	\$12,433
INV 941	Online Technician Certification/Recertification Training	INV 941	MnDOT Multimedia Development Group	Eugene Olchefske	Michael Hogan, John Micheau	Daniel Warzala	11/21/12	1/31/14	LRRB	\$20,700
INV 942	Aggregate Road Surface Rejuvenate	99004 W010	Iowa State University	Charles Jahren	Bruce Hasbargen	Daniel Warzala	1/30/13	7/31/14	LRRB	\$88,910
INV 943	Traffic Sign Life Expectancy	02889	CH2M Hill	Howard Preston	Tim Plath	Shirlee Sherkow	2/7/13	7/31/14	LRRB	\$37,722
INV 943	Traffic Sign Life Expectancy	LAB943	MnDOT Materials and Road Research Section	Matthew Lebens	Tim Plath	Shirlee Sherkow	2/11/13	3/31/14	LRRB	\$37,935
INV 945	MPR-4(010): Next Generation Bridge Management Tools and Inspection	99004 W09	Iowa State University	Basak Aldemir Bektas	Thomas Martin	Daniel Warzala	6/14/13	12/31/14	LRRB, SP&R, SRP	\$72,072
INV 947	Investigation of Optimal Mix Design of Full Depth Reclamation Stabilization with Cement and Emulsion	99008 W0101	University of Minnesota	Jialiang Le	None	Shirlee Sherkow	6/14/13	9/30/15	LRRB, SP&R, SRP	\$95,823
INV 948	Flagger Operations: Investigating Their Effectiveness in Capturing Driver Attention	99008 W090	University of Minnesota	Kathleen Harder	Robert Vasek	Daniel Warzala	5/16/13	10/31/15	LRRB, SP&R, SRP	\$270,351
INV 949	Tack Coat Testing: Measuring Field Bond Strength	LAB949	MnDOT Materials and Road Research Section	Melissa Cole	Thomas Wood	Nelson Cruz	5/16/13	6/30/15	LRRB	\$68,000
INV 952	Best Management Practices for Establishment of Salt-Tolerant Grasses on Roadsides	99008 W093	University of Minnesota	Eric Watkins	Dwayne Stenlund	Daniel Warzala	5/30/13	9/30/17	LRRB	\$193,677
INV 955	Deployment of Portable WIM Systems at ATR Sites for Data Collection and Comparative Study	03683	SRF Consulting Group, Inc.	Erik Minge	Benjamin Timerson	Nelson Cruz	4/25/13	1/31/15	LRRB, SRP	\$65,904
INV 955	Enhanced Capabilities for Portable WIM Systems	99008 W0117	University of Minnesota – Duluth	Taek Kwon	Benjamin Timerson	Nelson Cruz	4/22/13	6/30/14	LRRB, SRP	\$33,512
INV 998	Operational Research Program for Local Transportation Groups (OPERA), FY2012	99008 W019	University of Minnesota	Jim Grothaus	Julie Skallman	Farideh Amiri	9/23/11	11/30/13	LRRB	\$90,000
INV 998	Operational Research Program for Local Transportation Groups (OPERA), FY2013-FY2014	99008 W064	University of Minnesota – CTS	Jim Grothaus	Julie Skallman	Farideh Amiri	7/3/12	6/14/14	LRRB	\$135,000
INV 999	MnDOT RSS Report Publication Services, FY2012	99008 W018	University of Minnesota	Arlene Mathison	Farideh Amiri	Sandra McCully	10/11/11	11/30/12	LRRB, SRP	\$36,861
INV 999	RSS Report Publication Services, FY2013	99008 W069	University of Minnesota	Arlene Mathison	Nick Busse	Sandra McCully	7/27/12	8/31/13	LRRB, SRP	\$30,088

# LRRB STRATEGIC GOALS

The LRRB sponsors research projects that improve Minnesota's local government road system with regard to:

## 1. Design—

the determination of the need for and nature of a proposed road system project

## 2. Construction—

the implementation of the plans and specifications from the road system design process

## 3. Maintenance/Operations—

the operation and maintenance of the road system investment

## 4. Environmental Compatibility—

the integration of the local road system into the community to minimize adverse environmental impacts while contributing to economic and social well-being



The LRRB has funded several research videos to spread the word about research innovations, best practices and topics of public interest. Watch them at [www.lrrb.org/resources/videos](http://www.lrrb.org/resources/videos).



Produced by CTC & Associates for:

Minnesota Department of Transportation  
Office of Transportation System Management  
Research Services & Library  
Local Road Research Board  
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[mndot.gov/research](http://mndot.gov/research)

## LRRB Mission

The mission of the LRRB is to serve local road transportation practitioners through the development of new initiatives, the acquisition and application of new knowledge, and the exploration and implementation of new technologies.

## How the LRRB Works

Each year, the LRRB's 10-member board, including city and county engineers and key MnDOT decision-makers, approves and funds transportation practitioners' most innovative proposals for research projects that address the needs of local transportation agencies. Once projects are approved, investigators from MnDOT, regional universities and consulting firms conduct the research while the LRRB monitors its progress and MnDOT provides administrative support and technical assistance.

## Sharing the Results

Once research has been completed, the Research Implementation Committee ([www.lrrb.org/ric.aspx](http://www.lrrb.org/ric.aspx)) communicates the results and facilitates their practical application. The RIC uses a variety of outreach methods, including presentations, reports and manuals, videos, workshops, field demonstrations, online training and on-site visits, to convey new developments to engineers and other transportation practitioners.

## LRRB Resources

Our website, [www.lrrb.org](http://www.lrrb.org), provides copies of all of our research reports as well as training materials, handbooks, research syntheses and software applications.

## Submit Your Ideas

The LRRB welcomes research ideas from Minnesota transportation practitioners. To submit your ideas, go to [www.lrrb.org](http://www.lrrb.org) and click the Submit Ideas button on the left-hand side of the page.

**SUBMIT IDEAS**

Please also consider becoming a member of a Technical Advisory Panel. You can play a vital role in guiding a research project to a successful completion. To learn more, watch our video series at [mndot.gov/research/taps.html](http://mndot.gov/research/taps.html).

